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Increased levels of IgG antibodies against human HSP60 in patients with spondyloarthritis

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Spondyloarthritis (SpA) comprises a heterogeneous group of inflammatory diseases, with strong association to human leukocyte antigen (HLA)-B27. SpA is suggested triggered by bacterial infection, and bacterial heat shock protein (HSP) seems to be a strong T cell antigen. Since bacterial and human HSP60, also named HSPD1, are highly homologous, cross-reactivity has been suggested in disease initiation. In this study, levels of antibodies against bacterial and human HSP60 were analysed in SpA patients and healthy controls, and the association between such antibodies and disease severity in relation to HLA-B27 was evaluated.

Serum samples from 82 patients and 50 controls were analysed by Enzyme-linked immunosorbent assay (ELISA) for immunoglobulin (Ig)G1, IgG2, IgG3 and IgG4 antibodies against human HSP60 and HSP60 from *Chlamydia trachomatis*, *Salmonella e.* Enteritidis and *Campylobacter jejuni*. Disease severity was assessed by the clinical scorings Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI) and Bath Ankylosing Spondylitis Metrology Index (BASMI).

Serum samples was collected from the outpatient clinic at Aarhus University Hospital after informed written consent was given, according to the Danish Data Protection Agency, the Local Ethics Committee (project number 20050046) and the Declaration of Helsinki.

1. Oldstone MB: Molecular mimicry and immune-mediated diseases. *The FASEB Journal* 1998, **12**:1255-1265
2. McMichael A, Bowness P: HLA-B27: natural function and pathogenic role in spondyloarthritis. *Arthritis Res* 2002, **4** Suppl 3: 153-158.
3. Imman RD: Mechanisms of disease: Infection and spondyloarthritis. *Nat Clin Rheumatol* 2006, **2**:163-169

- ① A statistical significant association between the SpA group and IgG1 & IgG3 antibodies against human HSP60 (Figure 1D, $p < 0.001$).
- ② Cross-reactivity to bacterial HSP60 could not be supported.
- ③ IgG3 antibodies against human HSP60 correlated to disease activity for HLA-B27+ patients (Spearman, $r = 0.48$, $p = 0.001$).
- ④ These results suggest that antibodies against human HSP60 in connection with HLA-B27 may be associated with SpA.

*** p<0.001; * p<0.01

1. Oldstone MB: Molecular mimicry and immune-mediated diseases. *The FASEB Journal* 1998, **12**:1255-1265
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